

Veterinarians' Guide to Rabies Vaccination and Follow-up

Although rabies has been in the United States for centuries, the dynamics of rabies in the animal populations has changed dramatically in the last 50+ years. Vaccination campaigns and other rabies control programs initiated in the 1940s and 1950s resulted in a major decline of rabies in domestic animals. For example, rabies in dogs has declined from 6,949 cases in 1947 to 89 in 2001. As the decline in domestic animal rabies has occurred there has been a subsequent increase in the occurrence of rabies in the wild animal populations. In 2001, more than 93% of the 7,437 cases of rabies in animals were in wild animals compared with 6.7% in domestic species. The occurrence of rabies in animals in 2001 was in the following descending order raccoons, skunks, bats, foxes, cats, dogs, and cattle.¹

The vaccination and control programs, along with public health education, have contributed to reducing the transmission of terrestrial rabies to humans. However, human cases of rabies continues to occur in the U.S., mostly from bat-associated variants. Traditional means of rabies control hasn't been useful, thus far, for bats and bat bites often go unnoticed, are ignored, or are forgotten. Since 1990, 24 of 26 human cases of indigenously acquired rabies were associated with bat variant rabies. Only two of the cases reported a definite history of a bite.¹

Mississippi has not had a terrestrial case of rabies in almost 40 years.² Even so, at least two to three bats are laboratory confirmed with rabies every year. Regardless of the small number of rabies cases confirmed, the MSDH Public Health Laboratory tests between 800 and 1000 animals each year for rabies. Interestingly, every state bordering MS reports terrestrial and bat animal rabies. The biggest threat to MS's rabies free status is Alabama because of the lack of a natural border separating the states. Since 1997, eight raccoons, six bats, and one dog have been reported as rabid from Mobile County, AL which is directly adjacent to Jackson County, MS.³ The MSDH is working in cooperation with the USDA Wildlife Service to increase rabies surveillance among road-killed raccoons in Hancock, Harrison, and Jackson Counties. So far, there have been no rabies positive specimens identified.

Rabies remains a highly fatal but preventable disease. The exposure type, animal species involved, circumstances of the exposure, and geographic location can all be used to determine the indication for postexposure management of humans and animals potentially exposed to rabies. Often, simply sending in an appropriate sample can prevent unnecessary expense, time and pain.

The following guidelines are summarized from the documents *Compendium of Animal Rabies Prevention and Control, 2003*⁴ and *Human Rabies Prevention—United States, 1999: Recommendations of the Advisory Committee on Immunization Practices (ACIP)*⁵. These documents can be found in their entirety on the MSDH website. To assist you in handling cases in which animals are bitten by rabid animals or in which humans are bitten by domestic or wild animals. Also, summarized below are rabies vaccination regulations for dogs, cats, and ferrets and treatment guidelines in the event of an exposure. For more information, please call the MSDH Division of Epidemiology at 601-576-7725.

Pre-Exposure Vaccination⁶

Dogs and Cats

All dogs and cats shall be vaccinated against rabies at three months of age, revaccinated one year later and every three years thereafter, using a rabies vaccine approved as providing a 3-year immunity.

Ferrets⁴

Domestic ferrets should be vaccinated against rabies at three months of age and annually thereafter using a rabies vaccine approved for use in ferrets.

Livestock

Consideration should be given to vaccinating livestock that are particularly valuable or that might have frequent contact with humans (e.g., in petting zoos, fairs, and other public exhibitions).

Horses traveling interstate should be currently vaccinated against rabies. See the *Compendium of Animal Rabies Prevention and Control*⁴ for approved rabies vaccines, routes of inoculation, dose, and schedule recommended for the species of livestock to be inoculated.

Wildlife

Vaccination of wildlife is not recommended since no vaccine is licensed for use in wild animals. Offspring of wild animals bred with domestic dogs or cats are considered wild animals.

Vaccine Administration

All animal rabies vaccines are restricted to use by or under the supervision of a veterinarian or person specifically licensed or designated by the State Board of Health to administer rabies vaccine.

Post-Exposure Management

The following flow charts are designed to assist you in managing animals following exposure to rabid animals or exposing a human to potential rabies.

Any animal bitten or scratched by a wild, carnivorous mammal or bat that is not available for testing should be regarded as having been exposed to rabies.

References:

1. Krebs J, Noll H, Rupprecht C, Childs J. Rabies surveillance in the United States during 2001. *J Am Vet Med Assoc* 2002; 221 (12): 1690-1701.
2. Brackin B. Evidence of New and Serious Encroachment of Raccoon Rabies. *Mississippi Morbidity Report* 1998; vol. 16; no. 9.
3. Personal communication. Sharon Thompson, Alabama Department of Health.
4. The NASPHV Committee. Compendium of Animal Rabies Prevention and Control, 2003. *MMWR* 2003; Vol. 52 (RR-5).
5. Centers for Disease Control and Prevention. Human Rabies Prevention – United States, 1999: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1999; 48 (No. RR-1).
6. Mississippi State Department of Health, Division of Epidemiology. *Rules and Regulations Governing Reportable Diseases and Conditions, Mississippi State Department of Health* 1996 (Revised 1998); 9-10.